

# **LACKLAND AIR FORCE BASE PHASE II UNIFORM ISSUE**

## **BASELINE REPORT**

REPORT DL024T2

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# Chapter 1

## Introduction

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### PURPOSE

LMI was tasked to conduct a baseline assessment of the Lackland Air Force Base (AFB) Phase II dress uniform issue process for male trainees.

The purpose of this baselining effort is to provide the DLA Customer Driven Uniform Manufacturing II (CDUM II) Project a starting point for additional studies of new technologies and opportunities for improving Lackland AFB's Phase II dress uniform issue and inventory management process.

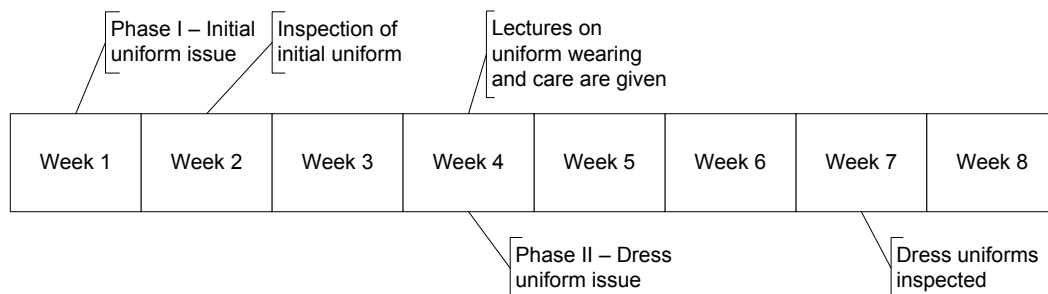
### BACKGROUND

Lackland AFB in San Antonio, Texas, is the U.S. Air Force's (USAF's) initial training facility. At Lackland AFB the 737th Training Group provides Air Force basic military training (BMT) to roughly 35,000 Air Force trainees annually. This mission has given Lackland AFB the nickname "Gateway to the Air Force."

Lasting 8.5 weeks, the Air Force BMT program puts trainees through a series of training evolutions geared toward preparing the world's most proficient airmen. Uniform issue and care is one of the first lessons taught. Phase I of recruit utility uniform issue takes place on Day 1 of BMT. Service dress uniform issue, or Phase II of uniform issue, takes place during Week 4.

For a high-level timeline of uniform issue activities, please refer to Figure 1-1.

*Figure 1-1. Basic Military Training Timeline*



This baseline report focuses on the Phase II dress uniform issue process. Specifically, the processes by which service dress uniforms are issued and the processes that affect accountability in Lackland AFB's inventory management system.

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## ORGANIZATION

The remainder of this report includes two chapters and five appendices.

In Chapter 2, we discuss the Phase II dress uniform issue process. After describing the facility layout, we note the uniform items issued and the manner in which the Air Force clothing initial issue point (AF CIIP) employees at Lackland AFB distribute them. Our understanding of the process is based solely on the observations of our team during a February 2011 visit. At the end of the chapter, we provide process metrics based on observations from that visit.

In Chapter 3, we discuss the inventory reporting and management processes employed at Lackland AFB. This is the final element of the Phase II uniform issue process. Contained within this chapter are details about Lackland AFB's inventory reporting method and metrics that highlight time measurements, volume data, and inventory reporting accuracy data.

In Appendix A, we resurrect a baseline analysis conducted at the U.S. Marine Corps Recruit Depot, San Diego (USMCRD-SD), in 2000. That baseline analyzed a different uniform issue method, one in which recruits were hand-measured by professional tailors. The numbers provided are the "go/no-go" metrics for the USMC recruit uniform issue process. They are included in this report as a way to compare the effectiveness of size prediction between the USMCRD-SD method and the Lackland AFB method.

In Appendix B, we present the daily schedule the AF CIIP employees adhere to throughout the Phase II uniform issue process. The day starts at 0630 and ends at 1630.

In Appendix C, we show a blank inventory sheet as currently used by AF CIIP employees at Lackland AFB. The first page contains bubbles for the AF CIIP employees to fill in with trainee sizing information; the second page contains bubbles that have already been filled in for standard issue items, uniform items that do not have an associated size (e.g., USAF insignias, belt, and belt buckle).

In Appendix D, we explain the Autodata Form Reader software, which is the inventory sheet processing software used at Lackland AFB. This software facilitates the scanning and processing of the inventory sheets described in Appendix C.

In Appendix E, we display inventory accuracy metrics for the Phase II issue process for female trainees. The calculation of these numbers parallels the calculation of the inventory accuracy metrics at the end of Chapter 3.

## Chapter 2

# Phase II Uniform Issue Process

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The AF CIIP is laid out in such a way that all warehousing and the cutting and sewing of uniform items are done on-site. The first section of this chapter, *Facility Layout*, describes the floor plan and orientation of the Phase II area of the AF CIIP.

The second section of this chapter, *Process Flow*, addresses the items issued throughout the Phase II uniform issue process. The process flow in this section applies to the entire sizing, issuing, and altering process of Phase II uniform issue.

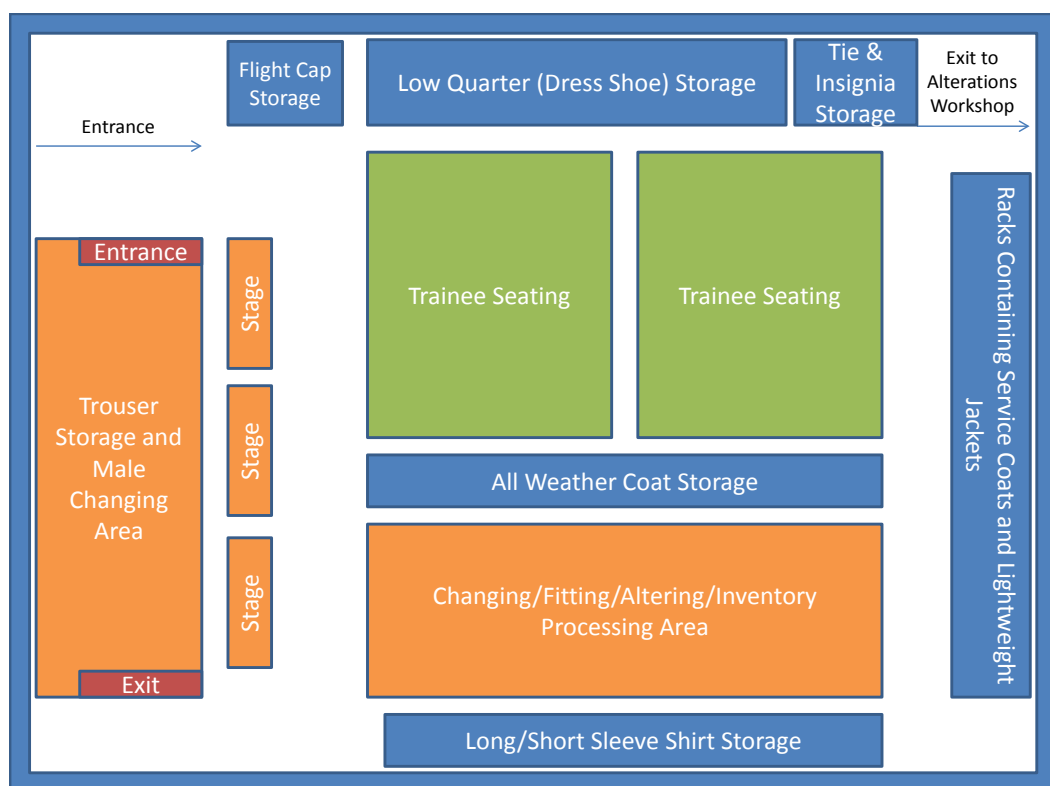
The final section of this chapter, *Metrics*, presents the observations of our team as they relate to the Phase II dress uniform issue process. The metrics we captured relate to the visual fit and alterations phases, which are described in the Process Flow section of this chapter.

## FACILITY LAYOUT

The Phase II area of the AF CIIP consists of one large room partitioned into smaller areas. This allows the AF CIIP employees to conduct several different elements of the issue process in parallel. Figure 2-1 illustrates the general layout of the facility. The room is connected to the AF CIIP warehouse, where inventory is stored. Alterations are made in a room adjacent to the AF Phase II issue area.

The smaller partitions of this room are color coordinated by function. In Figure 2-1, orange signifies the areas that generally serve as fitting areas for the trainees. It is in these areas that trainees spend the majority of their time during the Phase II uniform issue process. The blue regions are storage areas for each of the Phase II dress uniform issue items (each item will be discussed later in this report). The green rectangles in Figure 2-1 indicate designated trainee seating, where certain batched items are staged for the trainees before they enter the facility. The red areas indicate the entrance and exit for the trouser storage and male changing area.

Figure 2-1. CIIP Facility Layout



## PROCESS FLOW

### Uniform Issue Items

AF CIIP employees have learned from experience that batching certain uniform items before trainees arrive leads to a smoother flow of trainees through the uniform issue process. A detail (i.e., trainees tasked to assisting the CIIP for the day) places these *staged* items<sup>1</sup> on each trainee's seat the evening before the scheduled Phase II uniform issue.

Table 2-1 lists number of sizes available and quantities issued for items that are staged for the trainees. Table 2-2 lists the same information for sized items. The issue of these uniform items consumes the bulk of the Phase II uniform issue time.

<sup>1</sup> All other items—those trainees must obtain from a storage area—are called *sized* items.



*Table 2-1. Staged Uniform Items*

Staged item	Male size count	Issue quantity
Belt	1	1
Undershirt, V-neck <sup>a</sup>	2	2 packs of 3
Flight cap <sup>b</sup>	10	1
Necktie	1	1
Buckle, chrome	1	1
U.S. insignia, circle	1	1 set of 2

<sup>a</sup> A size medium is staged on every seat. Only by exception is a size large issued.

<sup>b</sup> Size 7<sup>1</sup>/<sub>8</sub>" are staged on every seat. These flight caps are fitted during the trainees' lunch break.

*Table 2-2. Sized Uniform Items*

Sized item	Male size count	Issue quantity
Long sleeve shirt	52	2
Short sleeve shirt	12	2
Dress trousers	71	3
Service coat	56	1
All weather coat	35	1
Lightweight jacket	31	1
Low quarters <sup>a</sup>	37	1 pair

<sup>a</sup> Not altered.

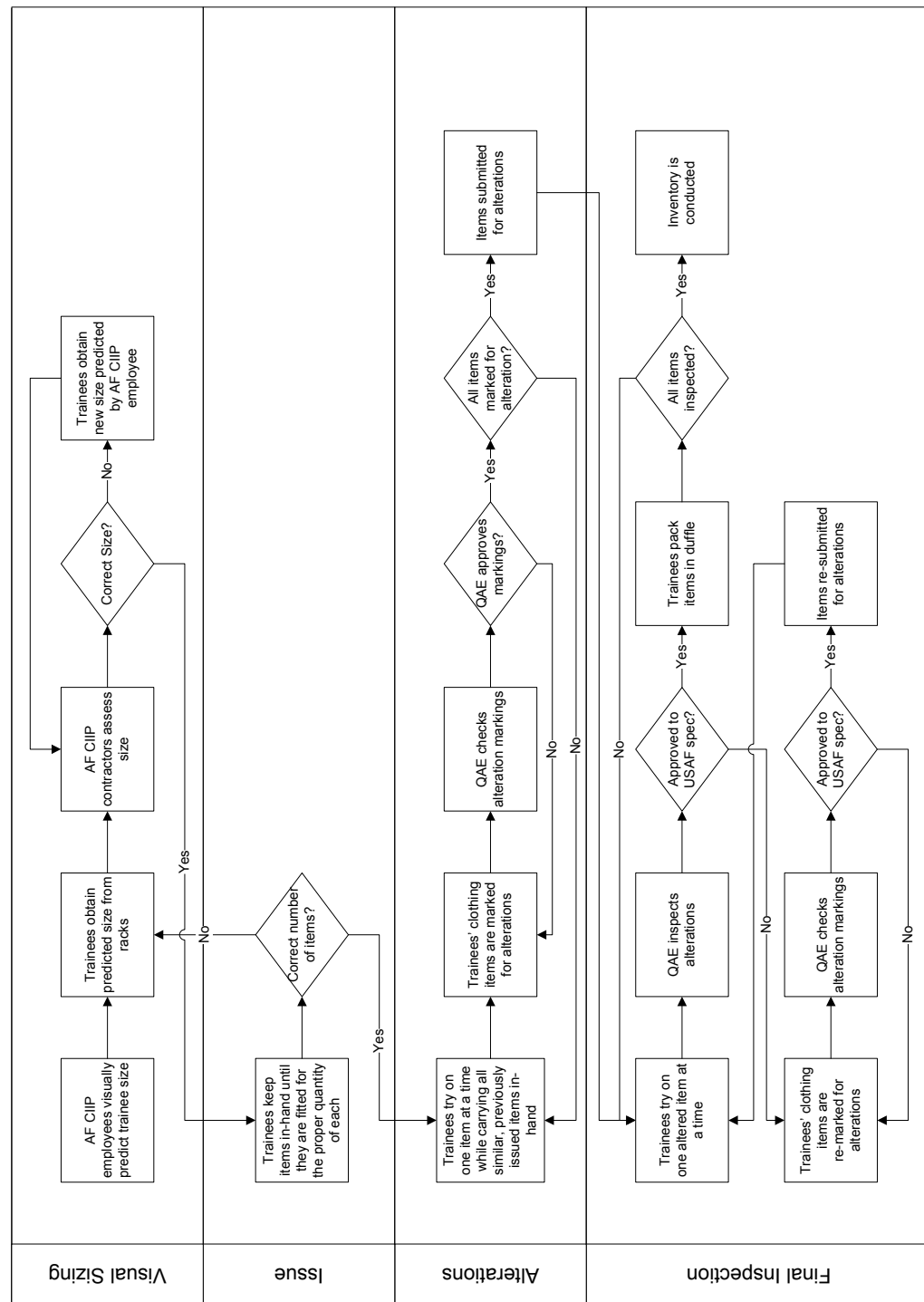
All trainees' trousers and service coats are altered by the AF CIIP employees; other items can also be altered, if necessary. A pair of low quarters (i.e., dress shoes) is issued to each trainee before the AF CIIP employees arrive<sup>2</sup> to facilitate accurate trouser alterations.

## Phase II Uniform Issue Process

By 0700, the trainees have been briefed and prepped for Phase II dress uniform issue of sized items. Figure 2-2 illustrates the Phase II dress uniform issue process relative to the sized items. For a complete daily schedule, please refer to Appendix B.

<sup>2</sup> Trainees are not "sized" for the initial issue of low quarters. At this point, optimal sizing is not a concern.

Figure 2-2. Phase II Dress Uniform Issue Process



Note: QAE = quality assurance expert.

Each stage of the process has been broken out below. The visual sizing, issue, alterations, and final inspection processes are similar for the dress trousers, service coats, long sleeve shirts, and all weather coats. We provide the trouser issue as an example:

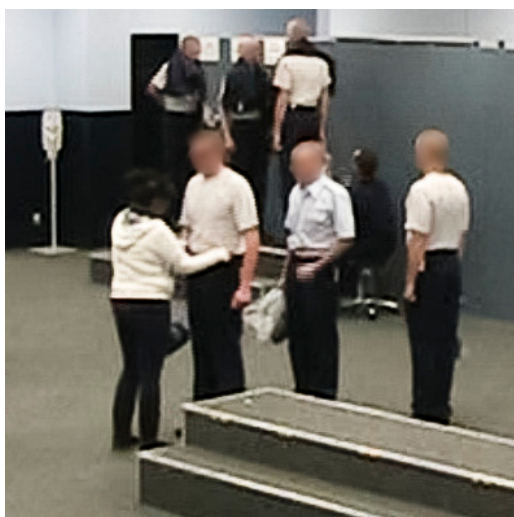
- ◆ *Visual sizing.* The AF CIIP contractors visually gauge the trainee's size. The trainee tries on the size predicted by the AF CIIP contractors. This process is repeated until correct base size is chosen. Figure 2-3 is a photo of the trainees queue for visual trouser sizing. AF CIIP employees are on the far left.

*Figure 2-3. Visual Sizing—Trousers*



- ◆ *Issue.* Trainees proceed through the visual sizing stage, keeping all previously approved sized items in hand. Figure 2-4 shows AF CIIP contractors reviewing the fit of the predicted trouser sizes the trainees were assigned. If an item does not receive approval (it is not the correct size), the trainee returns to the trouser fitting area for another size. Once the size is approved, trainees are issued that pair of trousers. This process repeats until the trainee possesses the appropriate number of garments.

*Figure 2-4. Issue—Trousers*



- ◆ *Alterations.* Once the trainee receives the required number of garments, he proceeds to alterations. Each garment is worn in front of a tailor, who makes the proper alteration markings on the garment. The trainee retains all items that require alterations until all are altered. Once all items are marked for alterations, the markings must be approved by the quality assurance expert (QAE). Once approved the trainee applies a nametag to the garment and submits it to an AF CIIP contractor for alteration. Figure 2-5 shows the AF CIIP contractors marking the trainees' trousers for alterations.

*Figure 2-5. Alterations—Trousers*



- ◆ *Final inspection.* Once AF CIIP contractors alter all garments, they are re-distributed to the trainees, who try on the altered garment in front of the QAEs for final inspection. If they do not pass final inspection, the trainees' items are re-marked and re-altered until approved by the QAEs. In Figure 2-6 the AF CIIP contractors and QAEs ensure the trainees' trousers fit to USAF specification.

Figure 2-6. Final Inspection—Trousers



## METRICS

While at Lackland AFB, our team set up positions on the CIIP floor to capture uniform item exchange metrics and alteration metrics for service coats and trousers. These numbers are relevant when considering potential alternative issuing and size prediction methods that may improve the Phase II uniform issue process.

### Size Exchange Metrics

Table 2-3 displays metrics that relate to the number of times trainees were instructed to obtain a different size. The total number of items issued, the number of exchanges, and percentage of items exchanged (based on the previous two values) are listed in this table, organized by uniform item.

*Table 2-3. Uniform Size Exchange Metrics during Visual Sizing  
(average number of exchanges based on observations from two flights)*

Uniform item	Number of items issued	Number of exchanges	Percentage exchanged
Long sleeve shirts (2 shirts)	98	32	33%
Short sleeve shirts (2 shirts)	98	10	10%
Trousers (3 pairs)	147	96	65%
Lightweight jacket	49	8	16%
Service coat	49	28	56%
All weather coat	49	10	19%
Low quarters	49	48	98%
Flight caps	49	39	80%

The numbers in Table 2-3 are representative of the number of times each trainee obtained a larger or smaller size during the visual sizing stage of the Phase II uniform issue process. The items most frequently switched were low quarters and flight caps. The following bullets describe issue activity related to those two items:

- ◆ *Low quarters.* The initial size of the low quarters is determined by an estimate provided by the trainee. Given that trainees are not familiar with the sizing before the Phase II uniform issue process, they require more opportunities to try on larger or smaller sizes. In addition, upon initial issue of low quarters, trainees are not given enough time to find the optimal fit. More time is made for that during the trainees' lunch hour.
- ◆ *Flight caps.* Details assist the AF CIIP employees by placing a size 7<sup>1</sup>/<sub>8</sub>" flight cap on all trainees' seats the evening before trainees arrive. The AF CIIP employees selected this size because it is the most commonly issued. Our observation of the flight cap sizing revealed that some trainees returned to the AF CIIP employees multiple times until the correct size was found.

## Alteration Metrics

The following charts refer to the final inspection stage of the Phase II uniform issue process. Figure 2-7 shows the number of alterations the trainees underwent until their trousers were cleared by the AF CIIP contractors. Because all trousers are issued with an open hem, they all require at least one round of alterations; thus the 100 percent in the first column of Figure 2-7. The second column of the chart reflects only those trousers that required waist or crotch alterations, just under 50 percent. A smaller percentage of trousers (roughly 25 percent) required an additional alteration beyond this second alteration.

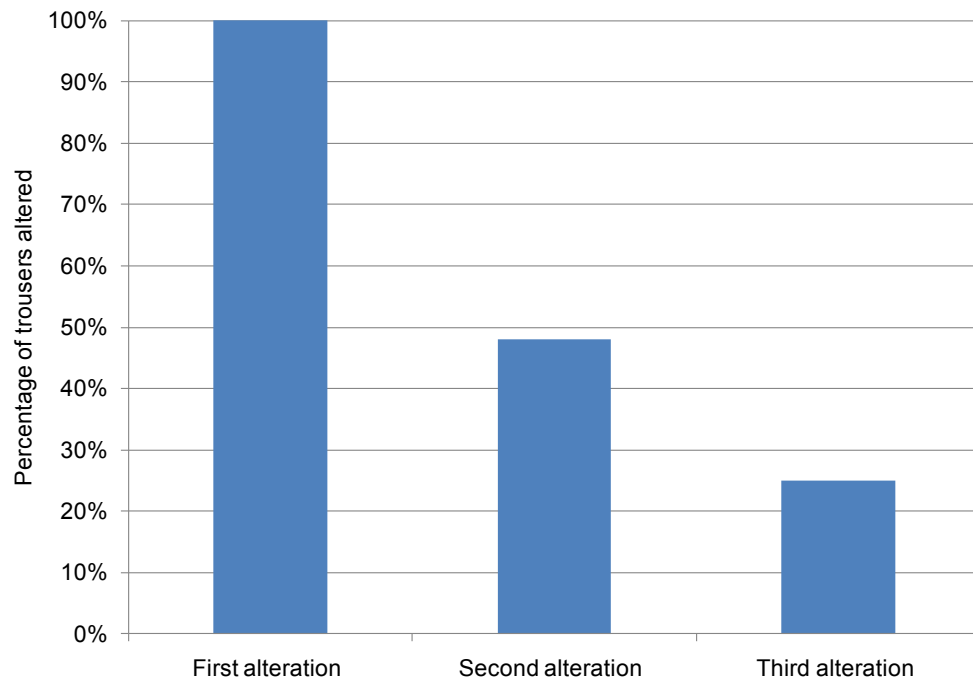
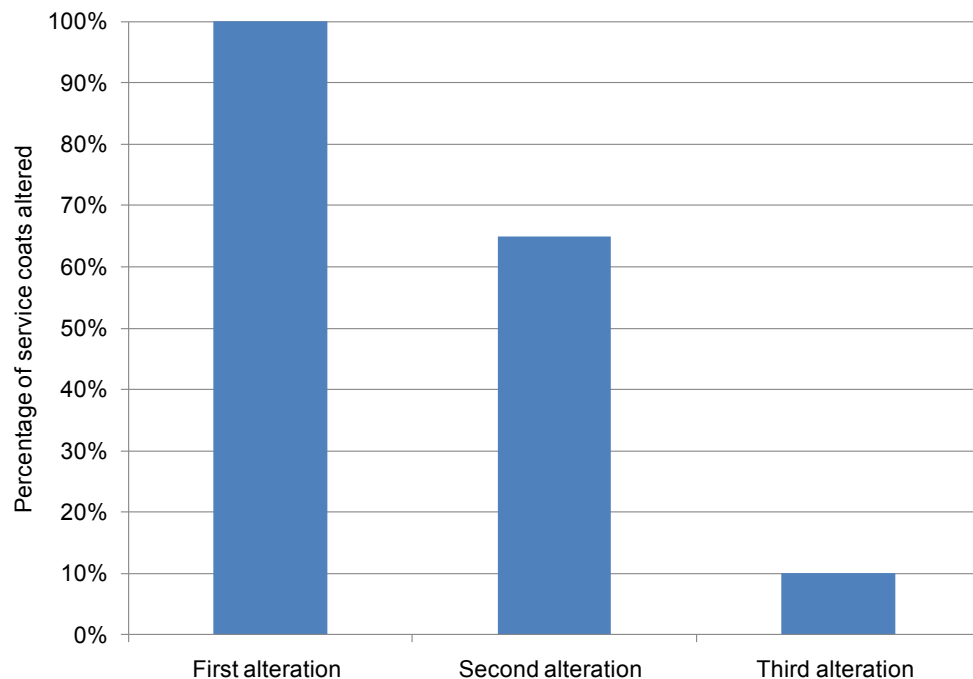
*Figure 2-7. Trouser Alteration Metrics*

Figure 2-8 shows the number of iterations (alteration an inspection) trainees underwent until their service coats were cleared by the AF CIIP employees. Like trousers, all service coats require at least one round of alterations because they are issued with an open hem. The second and third iterations of alterations and inspections were done to make further adjustments to fit the service coats.

*Figure 2-8. Service Coat Alteration Metrics*

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Our team observed that all uniform items were approved by the QAE after the third round of alterations. The percentages we calculated were rounded to the nearest whole number.



## Chapter 3

# Inventory Management

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The final element of Phase II uniform issue deals with inventory management. Once each trainee finishes the final inspection stage, he enters the inventory reporting. In this stage, the trainee reports the sizes of his uniform items to an AF CIIP employee. This information is written on specially formatted bubble sheets, which are scanned and uploaded into Lackland AFB's Virtual Inventory Manager (VIM) system.

Supplementing the inventory reporting method are metrics associated with this process. These metrics aim to show the time consumed over the large volume of uniform issues that are conducted daily, as well as the system's vulnerability to inventory inaccuracy. The metrics are designated "observation metrics" or "inventory accuracy metrics."

## INVENTORY REPORTING METHOD

The inventory reporting portion of Phase II uniform issue begins after the trainees receive all of their altered garments and pass the QAE's final inspection. It is at this time that trainees proceed to the inventory processing area, carrying with them one of each of the nine sized items. One by one the trainees lay their uniform items on the floor and report to an AF CIIP employee everything they have been issued and the corresponding sizes. This activity is illustrated in Figure 3-1.



*Figure 3-1. Inventory Reporting*



The AF CIIP employee fills in the inventory data on the inventory reporting bubble sheets. In Figure 3-2, we provide the templates for two inventory items: all weather coats and lightweight jackets. The full inventory sheets are provided in Appendix C.

If the trainee wears a size that is not one of the 10 common sizes, the AF CIIP employee marks the “other size” box and writes the size in the “enter size” block.

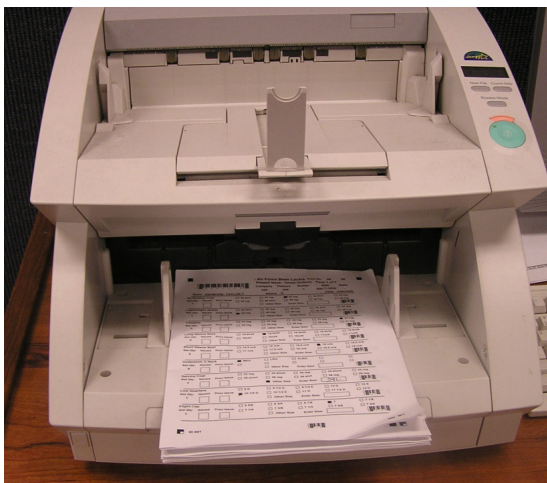
*Figure 3-2. Bubble Sheet for All Weather Coats and Lightweight Jackets*

<b>All Weather Coat</b>			<input type="checkbox"/> 42 shrt	<input type="checkbox"/> 42 reg	<input type="checkbox"/> 42 lng	<input type="checkbox"/> 44 shrt	<input type="checkbox"/> 44 reg
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 44 lng	<input type="checkbox"/> 46 shrt	<input type="checkbox"/> 46 reg	<input type="checkbox"/> 46 lng	<input type="checkbox"/> 48 lng
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Other Size		Enter Size: <input type="text"/>		
<b>Lightweight Jacket</b>			<input type="checkbox"/> 40 shrt	<input type="checkbox"/> 40 reg	<input type="checkbox"/> 40 lng	<input type="checkbox"/> 42 shrt	<input type="checkbox"/> 42 reg
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 42 lng	<input type="checkbox"/> 44 reg	<input type="checkbox"/> 44 lng	<input type="checkbox"/> 46 reg	<input type="checkbox"/> 46 lng
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Other Size		Enter Size: <input type="text"/>		

After the AF CIIP employee fills out the inventory sheet, the trainee is allowed to return to his seat, pack up, and leave the CIIP.

Intermittently throughout the inventory reporting process, the AF CIIP employees collect the inventory sheets in batches, passing them to the AF CIIP employee operating the inventory sheet scanner, which is shown in Figure 3-3.

*Figure 3-3. Inventory Sheet Scanner*



Lackland AFB uses a software system, Autodata Form Reader, to import the inventory sheet scans and interpret the data. Once the program imports the handwritten information, it displays the scan. The AF CIIP employee working at the processing station must stand-by and verify each size for each garment and clear up any sizing discrepancies, which include deciphering potentially illegible handwriting of the AF CIIP employee who was collecting the data. For more details on the inventory processing software, please refer to Appendix D.

## METRICS

Our team's visit to Lackland AFB provided an opportunity to collect data that are relevant to the inventory processing stage of the Phase II uniform issue. Among these data are time studies and volume metrics. The section, *Observation Metrics*, presents the observations from our team's February 2011 visit.

Once the inventory sheets are filled out, scanned, and uploaded, the VIM software deducts the quantities of each issue item from Lackland AFB's inventory. Twice yearly, these numbers are reconciled during a 2-day physical inventory conducted by the AF CIIP employees. The tables in the section, *Inventory Accuracy Metrics*, present discrepancies that were calculated during Lackland AFB's December 2010 physical inventory.

### Observation Metrics

While at Lackland AFB our team recorded its observations of both the inventory reporting process and the inventory data input process. Table 3-1 and Table 3-2 are presented in the order of observation.

Table 3-1 presents our team's observations of the inventory reporting process by which trainees read off their sizes to the AF CIIP employees. The numbers in this table provide a sampling of trainees on the day of our team's visit.

*Table 3-1. Observed Metrics—Inventory Reporting Process*

	Number of observations	Time to collect inventory
Time to collect inventory with 1 trainee served at a time	15	27 minutes
Time to collect inventory with 2 trainees served at a time	30	33 minutes
Total	45	60 minutes

Table 3-2 displays the team's observations (of both time and volume) during the inventory data input process at Lackland AFB. During data input an AF CIIP employee manipulated the Autodata Form Reader software to upload the inventory data.

*Table 3-2. Observed Metrics—Inventory Data Processing Stage*

Number of inventory sheets	304
Number of manual entries/corrections	396
Time to scan and upload data	64 minutes

## Inventory Accuracy Metrics

The inventory accuracy metrics contained in this section illustrate the discrepancies between Lackland AFB's inventory, as reported by the VIM at close of business on 10 December 2010, and a physical inventory that took place on the weekend of 11–12 December 2010.

The first two tables in this section pertain to sized uniform items. These are for male uniform items only.<sup>1</sup> Both Table 3-3 and Table 3-4 display data that is rolled up by product group code (PGC). There are multiple sizes for each PGC.

Table 3-3 displays the difference between the inventory values reported by VIM and what was reported by AF CIIP employees during the physical inventory. AF CIIP employees derived the values presented in this table by multiplying the standard unit price for each PGC by the reported quantity on hand (QOH). All uniform items within the same PGC were considered interchangeable. Presenting the inventory results in this way depicts total inventory, independent of whether all sizes within a PGC are held in Lackland AFB's on-hand inventory.

*Table 3-3. Inventory Value by PGC for Male Phase II Uniform Issue*

PGC	Item	Physical inventory value <sup>a</sup>	VIM-reported value <sup>b</sup>	Difference	
				Value	Percentage
01892	Undershirt	\$74,565.60	\$80,524.80	(\$5,959.20)	-7.99%
01906	Long sleeve shirt	\$175,413.45	\$173,559.85	\$1,853.60	1.06%
01958	All weather coat	\$401,416.75	\$404,043.25	(\$2,626.50)	-0.65%
02016	Short sleeve shirt	\$99,099.00	\$101,686.00	(\$2,587.00)	-2.61%
02088	Lightweight coat	\$447,879.50	\$457,532.50	(\$9,653.00)	-2.16%
02233	Service coat	\$388,553.10	\$406,060.20	(\$17,507.10)	-4.51%
02234	Trousers	\$477,661.65	\$470,776.50	\$6,885.15	1.44%
02239	Flight cap	\$52,786.50	\$57,252.00	(\$4,465.50)	-8.46%
02450	Low quarters	\$280,480.20	\$288,703.80	(\$8,223.60)	-2.93%
21099	Necktie	\$53,880.75	\$59,314.50	(\$5,433.75)	-10.08%
Total		\$2,451,736.50	\$2,499,453.40	(\$47,716.90)	-1.95%

<sup>a</sup> Value as reported by AF CIIP employees from the 11–12 December 2010 physical inventory.

<sup>b</sup> Value as reported by VIM at the close of 10 December 2010 issue operations.

Table 3-4 displays the absolute values of the differences (the absolute difference) between the physical inventory and the VIM-reported QOH for each national stock number (NSN) summed to the PGC level. We obtained the absolute difference by adding the absolute values (both shortages and overages) for each size within each PGC. We then multiplied the absolute difference by the standard unit price for that PGC.

<sup>1</sup> Female issue items appear in Appendix E of this report.

Table 3-4. Absolute Difference in Inventory Value for Male Phase II Uniform Issue

PGC	Item	Physical inventory QOH	Absolute difference	Value of the difference	Difference as a percentage
01892	Undershirt	31,069	2,693	\$6,463.20	8.67%
01906	Long sleeve shirt	10,599	2,358	\$39,024.90	22.25%
01958	All weather coat	4,585	556	\$48,677.80	12.13%
02016	Short sleeve shirt	7,623	303	\$3,939.00	3.97%
02088	Lightweight coat	4,547	278	\$27,383.00	6.11%
02233	Service coat	4,461	427	\$37,191.70	9.57%
02234	Trousers	13,667	1,661	\$58,051.95	12.15%
02239	Flight cap	5,414	864	\$8,424.00	15.96%
02450	Low quarters	6,071	294	\$13,582.80	4.84%
21099	Necktie	10,263	1,035	\$5,433.75	10.08%
Total		98,299	10,469	\$248,172.10	10.65%

Table 3-5 and Table 3-6 display the difference between the quantities and values reported by the physical inventory with VIM inventory for each standard item PGC. These are items distributed to both men and women from the same pool of inventory; there is only one size for each PGC.

Table 3-5. Reported Inventory for Standard Issue Items by PGC Quantities

PGC	Item	Physical QOH	VIM QOH	Difference	
				QOH	Percentage
00024	Belt	8,630	8,832	(202.00)	-2.34%
21281	Buckle	9,165	10,197	(1,032.00)	-11.26%
32402	U.S. insignia	4,585	6,119	(1,534.00)	-33.46%
Total		22,380	25,148	(2,768.00)	-12.37%

Table 3-6. Reported Inventory of Standard Issue Items by PGC Values

PGC	Item	Physical \$	VIM \$	Difference	
				Value	Percentage
00024	Belt	\$20,280.50	\$20,755.20	(\$474.70)	-2.34%
21281	Buckle	\$33,910.50	\$37,728.90	(\$3,818.40)	-11.26%
32402	U.S. insignia	\$8,711.50	\$11,626.10	(\$2,914.60)	-33.46%
Total		\$62,902.50	\$70,110.20	(\$7,207.70)	-11.46%

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Table 3-5 displays an overall error rate of -12.37 percent, but Table 3-6 displays an overall error rate of -11.46 percent. The discrepancy is the result of per unit costs of the standard issue items. At a cost of \$3.70, a buckle affects the variation of the overall difference in value more than a belt (\$2.35) or an insignia (\$1.90).

## Appendix A

# Hand Measurement Metrics

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The data in this appendix are pulled from an earlier LMI report, *Operation Baseline of MCRD-San Diego 3-D Scanner Implementation*.<sup>1</sup> The data are based on the hand-measurement process used at U.S. Marine Corps Recruit Depot, San Diego (USMCRD-SD). They are included in this report as a way to compare the effectiveness of size prediction between the USMCRD-SD method and the Lackland AFB method.

In the Marine Corps study, we estimated hand measurement accuracy by counting *go* and *no-go* decisions of the fitter at the issue stations.

- ◆ A *go* decision is made if the fitter assesses each recruit's garment for proper fit and, upon approval, instructs the recruit to proceed to the next issue station.
- ◆ A *no-go* decision is made if the fitter assesses the garment as having an improper fit and instructs the recruit to return to the garment issue station to exchange it for a differently sized garment.

The number of *no-go* decisions as a percentage of the overall number of fitter assessments (*go* + *no-go*) provides an estimate of the accuracy of the initial measurement (see Table A-1). The numbers in the percentage column are rounded to the nearest whole number.

*Table A-1. Go/No-Go Metrics from USMCRD-SD Hand Measurement Study*

Activity	Observations	Go	No-go	Percentage
Shirt fitting	244	122	122	50%
Trouser fitting	243	155	88	36%
Dress coat fitting	180	100	80	44%
Shoe fitting	112	100	12	11%
AWC fitting	17	12	5	29%
Frame/cover fitting	34	19	15	44%

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<sup>1</sup> LMI, *Operation Baseline of MCRD-San Diego 3-D Scanner Implementation*, Report DL007T1, Eric L. Gentsch et al., May 2000. Data presented here is a combination of Tables 2-2, 2-4, 2-6, and 2-8.

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Table A-2 compares the exchange rate of each similarly issued uniform item by comparing USMCRD-SD data with what our team observed at Lackland AFB.

*Table A-2. Exchange Rates—USMCRD-SD vs. Lackland AFB*

Uniform item USMC/USAF	Number of observations USMC	Number of observations USAF	Exchange rate USMC	Exchange rate USAF
Shirts	244	196	50%	22%
Trousers	243	147	36%	65%
Service coat/dress coat	112	49	44%	56%
Dress shoe/low quarter	112	49	11%	98%
All weather coat	17	49	29%	19%
Cover/flight cap	34	49	44%	80%



## Appendix B

# Daily Schedule

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Table B-1 provides the daily schedule of the AF CIIP employees.

*Table B-1. Daily Schedule for Phase II Uniform Issue*

Time	Activity
0630–0700	<p>Trainees arrive for second issue and are briefed and prepped by civil service employees.</p> <ul style="list-style-type: none"> <li>◆ Trainees are briefed for the arrival of the AF CIIP employees and given a pair of low quarters for the purpose of properly fitting trousers (low quarter size is initially estimated by the trainee).</li> <li>◆ Trainees are briefed on latrine location.</li> <li>◆ Trainees are briefed on evacuation procedures.</li> <li>◆ Trainees are briefed on recycling procedures.</li> <li>◆ Civil service employees attempt to do as many of the following activities during this period in order to lessen the number of tasks required during the lunch period: <ul style="list-style-type: none"> <li>○ Trying on larger/smaller low quarters, fitting flight caps, and checking the items in the each trainees' chair for accurate uniform item counts.</li> <li>○ Size 7<sup>1</sup>/<sub>8</sub> flight caps are initially placed in chairs. Trainees line up and civil service employees perform a visual fit. If caps do not fit, civil service employees assign changes in size until the correct one is issued.</li> </ul> </li> </ul>
0700–1200	<p>Trainees are turned over to AF CIIP employee.</p> <ul style="list-style-type: none"> <li>◆ Initial briefing from AF CIIP employee personnel.</li> <li>◆ Brief on airmen battle uniform (ABU) coat turn-in process.</li> <li>◆ Collect ABU coats.</li> <li>◆ Trainees are separated by flights (if more than one flight is scheduled)</li> <li>◆ The fitting of each clothing item involves the following activities: <ul style="list-style-type: none"> <li>○ AF CIIP employee visually sizes the trainee.</li> <li>○ Trainee obtains recommended size from storage racks.</li> <li>○ AF CIIP employee visually accepts size or directs trainee to get a different size.</li> <li>○ Garments that qualify for alterations are marked and inspected by the quality assurance expert (QAE) before they are cut/sewn.</li> </ul> </li> <li>◆ QAEs inspect each flight: <ul style="list-style-type: none"> <li>○ Validate specialty alterations suggested for the service coat.</li> <li>○ Validate waist modifications on service trousers and blue shirt alterations.</li> <li>○ Brief trainees on weight gain/loss.</li> </ul> </li> <li>◆ Once all garments marked for alteration are inspected, they are collected by the AF CIIP employees, cut, and sewn. The AF CIIP employees alter the clothing items as the trainees wait.</li> <li>◆ As each garment is altered, it is returned to the trainees to be tried on. If further alterations are required, the garment is resubmitted to the AF CIIP employees, and the trainees continue to wait.</li> </ul>

*Table B-1. Daily Schedule for Phase II Uniform Issue*

Time	Activity
1200–1315	<p>Civil service employees return to conduct the lunchtime activities.</p> <ul style="list-style-type: none"> <li>◆ Exchange low quarters for proper size (if incorrect size was selected in the morning).</li> <li>◆ Fit flight caps (if size is not the standard <math>7\frac{1}{8}</math>).</li> <li>◆ Civil service employees brief trainees on the inventory reporting process.</li> <li>◆ Lunch rules are briefed and lunch is served (lasts for about 20–25 minutes).</li> <li>◆ Lunch trash is collected.</li> <li>◆ As the trainees finish the fitting process, they take an all-weather coat, lightweight jacket, trousers, long-sleeve shirt, short-sleeve shirt, service coat, low quarters, and flight cap to the inventory processing area. All other items are standard issue items and already filled out on each trainee's inventory sheet.</li> <li>◆ The fitting process continues for trainees with garments that require further alterations.</li> </ul>
1315–1430	<p>AF CIIP employees finish inspection process.</p> <ul style="list-style-type: none"> <li>◆ Trainees are briefed about further inspections.</li> <li>◆ Trainees try on all clothes that require further alterations.</li> <li>◆ As each trainee is finished with the fitting process, he proceeds to the inventory processing area, where he reports his inventory items to a civil service employee.</li> <li>◆ Once all uniforms are issued, inventoried, and documented, trainees return to their squadrons in groups of two to four.</li> </ul>
1430–1630	<p>Finishing activities for individuals from other flights</p> <ul style="list-style-type: none"> <li>◆ Make ups—individuals who did not come to final issue with their flight and had to be rescheduled.</li> <li>◆ Weight gain/weight loss—individuals who have gained or lost weight since the Phase I initial uniform issue.<sup>a</sup></li> <li>◆ Accommodations are made for anyone who did not have the opportunity to get fitted on schedule.</li> </ul>

<sup>a</sup> Phase I initial uniform issue takes place during the first week of Air Force basic military training (BMT).

## Appendix C

# Inventory Sheets


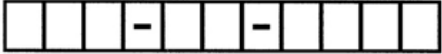









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This appendix provides a snapshot of the inventory sheets used by the AF CIIP employees to capture the inventory data that each trainee will declare individually. These sheets are designed to be scanned into Lackland AFB's virtual inventory manager (VIM).


Some important information to note about the inventory sheets:


- ◆ Only 10 sizes are listed for each item. If the trainee is issued a size other than the choices shown, the AF CIIP employee must mark "other size" and write down the size issued.
- ◆ To confirm the size that is written, a second AF CIIP employee must monitor the inventory sheet scanner to ensure the software reads the correct size. The inventory reporting software is explained and illustrated in Appendix D.
- ◆ The second page contains all of the standard issue uniform items. The bubbles are filled in ahead of time.

Figure C-1. Inventory Sheet, Page One of Two

Air Force Base Lackla		2M	
Phase2 Issue - Dress Uniform		Page 1 of 2	
			
Name	<input type="text"/>		
	Soc. Sec.No	Date: 2/3/2011	
<b>All Weather Coat</b>			
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 42 shrt <input type="checkbox"/> 42 reg <input type="checkbox"/> 42 lng <input type="checkbox"/> 44 shrt <input type="checkbox"/> 44 reg <input type="checkbox"/> 44 lng <input type="checkbox"/> 46 shrt <input type="checkbox"/> 46 reg <input type="checkbox"/> 46 lng <input type="checkbox"/> 48 lng <input type="checkbox"/> Other Size   Enter Size: <input type="text"/>
1	<input type="text"/>	<input type="text"/>	
<b>Lightweight Jacket</b>			
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 40 shrt <input type="checkbox"/> 40 reg <input type="checkbox"/> 40 lng <input type="checkbox"/> 42 shrt <input type="checkbox"/> 42 reg <input type="checkbox"/> 42 lng <input type="checkbox"/> 44 reg <input type="checkbox"/> 44 lng <input type="checkbox"/> 46 reg <input type="checkbox"/> 46 lng <input type="checkbox"/> Other Size   Enter Size: <input type="text"/>
1	<input type="text"/>	<input type="text"/>	
<b>Trousers</b>			
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 31 reg <input type="checkbox"/> 32 reg <input type="checkbox"/> 32 lng <input type="checkbox"/> 33 reg <input type="checkbox"/> 33 lng <input type="checkbox"/> 34 reg <input type="checkbox"/> 34 lng <input type="checkbox"/> 35 lng <input type="checkbox"/> 36 lng <input type="checkbox"/> 37 lng <input type="checkbox"/> Other Size   Enter Size: <input type="text"/>
3	<input type="text"/>	<input type="text"/>	
<b>Long Sleeve Shirt</b>			
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 15.5x34 <input type="checkbox"/> 15.5x35 <input type="checkbox"/> 16.5x34 <input type="checkbox"/> 16.5x35 <input type="checkbox"/> 16.5x36 <input type="checkbox"/> 16x33 <input type="checkbox"/> 16x34 <input type="checkbox"/> 16x35 <input type="checkbox"/> 17x35 <input type="checkbox"/> 17x36 <input type="checkbox"/> Other Size   Enter Size: <input type="text"/>
2	<input type="text"/>	<input type="text"/>	
<b>Short Sleeve Shirt</b>			
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 14.5 nck <input type="checkbox"/> 15 nck <input type="checkbox"/> 15.5 nck <input type="checkbox"/> 16 nck <input type="checkbox"/> 16.5 nck <input type="checkbox"/> 17 nck <input type="checkbox"/> 17.5 nck <input type="checkbox"/> 18 nck <input type="checkbox"/> 18.5 nck <input type="checkbox"/> 19 nck <input type="checkbox"/> Other Size   Enter Size: <input type="text"/>
2	<input type="text"/>	<input type="text"/>	
<b>Undershirt, V Neck</b>			
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> MED <input type="checkbox"/> LRG <input type="checkbox"/> XLRG <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other Size   Enter Size: <input type="text"/>
6	<input type="text"/>	<input type="text"/>	
<b>Service Coat</b>			
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 32 reg <input type="checkbox"/> 32 short <input type="checkbox"/> 34 reg <input type="checkbox"/> 34 short <input type="checkbox"/> 35 reg <input type="checkbox"/> 35 short <input type="checkbox"/> 36 reg <input type="checkbox"/> 36 shrt <input type="checkbox"/> 38 reg <input type="checkbox"/> 39 reg <input type="checkbox"/> Other Size   Enter Size: <input type="text"/>
1	<input type="text"/>	<input type="text"/>	
<b>Low Quarters</b>			
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 9 D <input type="checkbox"/> 9 1/2 D <input type="checkbox"/> 9 1/2 E <input type="checkbox"/> 10 D <input type="checkbox"/> 10 E <input type="checkbox"/> 10 1/2 D <input type="checkbox"/> 10 1/2 E <input type="checkbox"/> 11 D <input type="checkbox"/> 11 1/2 D <input type="checkbox"/> 12 D <input type="checkbox"/> Other Size   Enter Size: <input type="text"/>
1	<input type="text"/>	<input type="text"/>	
<b>Flight Cap</b>			
Std Qty:	Issued	Prior Issue	<input type="checkbox"/> 6 5/8 <input type="checkbox"/> 6 3/4 <input type="checkbox"/> 6 7/8 <input type="checkbox"/> 7 <input type="checkbox"/> 7 1/8 <input type="checkbox"/> 7 1/4 <input type="checkbox"/> 7 3/8 <input type="checkbox"/> 7 1/2 <input type="checkbox"/> 7 5/8 <input type="checkbox"/> 7 3/4 <input type="checkbox"/> Other Size   Enter Size: <input type="text"/>
1	<input type="text"/>	<input type="text"/>	

 ID 001





C-3



## Appendix D

# Inventory Processing Software

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At the end of the Phase II uniform issue process, the inventory sheets are scanned into Lackland AFB's Virtual Inventory Manager (VIM), which deducts the daily issue quantities from Lackland AFB's perpetual inventory.

1. Batched inventory sheets are scanned via computer scanner.
2. Autodata Form Reader imports the physical scans and attempts to read the filled-in bubbles.
3. The operator checks each inventory sheet and verifies that all of the bubbles were read properly.
4. When the software encounters *other size* bubbles, the operator manually reads the handwritten size and inputs the size into the appropriate field, as shown below in Figure D-1.
5. If the software detects the operator didn't input a size, it provides the scanned image and prompts the operator to select the proper size from a drop-down menu.
6. If the operator typed an unrecognized size, the software prompts the operator to select a size from a drop-down list. For example, if the operator keys in "6wr," the software reads the entry as an error because it only recognizes "6 wm reg." See Figure D-2 for an example of an unrecognized size for women's skirts.

Figure D-1. Autodata Form Reader Prompt for Manually Inputting "Other" Size

**Verification Window**

Type: Key Entry  
Status: Key Entry  
☒ Stop on LC Characters

Seq7PriorIssue  
Seq7Used  
Seq7OtherSize  
Seq8Dhulcused

Data: 40r

Next Field  
Close  
Prev Field  
Zoom Out  
Erase Field  
Zoom In

**Operator manually inputs size**

Item	Std Qty	Issued	Prior Issue	Size Options	Other Size	Enter Size
Trousers	3	<input type="checkbox"/>	<input type="checkbox"/>	31 reg, 32 reg, 32 lng, 33 reg, 33 lng, 34 reg, 34 lng, 35 lng, 36 lng, 37 lng	<input type="checkbox"/>	
Long Sleeve Shirt	2	<input type="checkbox"/>	<input type="checkbox"/>	15.5x34, 15.5x35, 16.5x34, 16.5x35, 16.5x36, 16x33, 16x34, 16x35, 17x35, 17x36	<input type="checkbox"/>	
Short Sleeve Shirt	2	<input type="checkbox"/>	<input type="checkbox"/>	14.5 nck, 15 nck, 15.5 nck, 16 nck, 16.5 nck, 17 nck, 17.5 nck, 18 nck, 18.5 nck, 19 nck	<input type="checkbox"/>	
Undershirt, V Neck	6	<input type="checkbox"/>	<input type="checkbox"/>	MED, LRG, XLRG	<input type="checkbox"/>	
Service Coat	1	<input type="checkbox"/>	<input type="checkbox"/>	32 reg, 32 short, 34 reg, 34 short, 35 reg, 35 short, 36 reg, 36 shrt, 38 reg, 39 reg	<input checked="" type="checkbox"/>	40r

Figure D-2. Autodata Form Reader Drop-Down Menu for Unrecognized Sizes

**Choose Size**

Skirt

PGC: 02350  
ReqNo: 443565

Previous Size: 6wr

OK  
View Image

Skirt: 6 wr lng

reg ☐ 16 lng ☐ 16 xlng ☐ 18 lng  
☒ Other Size Enter Size: 10-A

n s ☐ 8 wr reg ☐ 10 m s ☐ 10 m reg  
w reg ☐ 12 m s ☐ 12 w reg ☐ 14 w s  
☐ Other Size Enter Size:

v s ☐ 8 wr reg ☐ 10 m reg ☐ 10 w s  
m reg ☐ 12 w s ☐ 12 w reg ☐ 14 w reg  
☒ Other Size Enter Size: 6 wr

1/2 ☐ 21 ☐ 21 1/2 ☐ 22  
☐ 23 1/2 ☐ 24 ☐ 24 1/2  
☐ Other Size Enter Size:

Scroll Zoom factor (1 - 100%) 33 Flip Image  
Remove Scan From Processing

**Unrecognized text from operator input**

**Drop down list of accepted sizes**

**Scanned inventory sheet image to assist operator in correcting error**



## Appendix E

# Female Inventory Accuracy Data

---

This appendix directly parallels the inventory accuracy metrics for sized male trainee items, which were presented in Chapter 3. For the sake of brevity, we did not include the female inventory accuracy data in the main body of the report; however, for completeness, it is necessary to present the data.

Table E-1 displays the inventory accuracy data for the sized female uniform issue items. AF CIIP employees derived the values presented in this table by multiplying the per-unit value of each item by the reported quantity on hand (QOH). All uniform items within the same PGC are considered interchangeable. Presenting the inventory results in this way depicts total inventory, independent of whether the correct sizes are held in Lackland AFB's on-hand inventory.

*Table E-1. Physical Inventory Value for Female Phase II Uniform Issue*

PGC	Item	Physical inventory value <sup>a</sup>	VIM-reported value <sup>b</sup>	Difference	Error rate
01959	All weather coat	\$149,621.80	\$149,164.80	\$457.00	0.31%
02089	Lightweight coat	\$109,585.35	\$116,176.95	(\$6,591.60)	-6.02%
02236	Service coat	\$160,839.00	\$138,138.00	\$22,701.00	14.11%
02240	Long sleeve shirt	\$50,486.80	\$51,070.80	(\$584.00)	-1.16%
02241	Short sleeve shirt	\$46,984.05	\$47,761.65	(\$777.60)	-1.66%
02243	Flight cap	\$11,289.85	\$12,276.55	(\$986.70)	-8.74%
02350	Skirt	\$49,895.40	\$51,200.45	(\$1,305.05)	-2.62%
02353	Slacks	\$115,432.00	\$119,545.80	(\$4,113.80)	-3.56%
02451	Low quarters	\$256,626.75	\$261,651.75	(\$5,025.00)	-1.96%
21100	Neck tab	\$33,491.70	\$35,909.10	(\$2,417.40)	-7.22%
Total		\$984,252.70	\$982,895.85	\$1,356.85	0.14%

<sup>a</sup> Value as reported by AF CIIP employees from the 11–12 December 2010 physical inventory.

<sup>b</sup> Value as reported by VIM at the close of 10 December 2010 issue operations.

Table E-2 displays the absolute inventory accuracy (the absolute value of the difference between the physical inventory and the VIM of each PGC) for female Phase II uniform issue. We obtained the absolute difference by adding the absolute values (both shortages and overages) for each size within each PGC. We then multiplied the absolute difference by the per-unit value for that PGC.

*Table E-2. Absolute Physical Inventory Value by PGC for Female Phase II Uniform Issue*

PGC	Item	Physical inventory QOH	Absolute difference	Value of the difference	Difference as a percentage
01959	All weather coat	1,637	165	\$15,081.00	10.1%
02089	Lightweight coat	1,197	200	\$18,310.00	16.7%
02236	Service coat	1,998	522	\$42,021.00	26.1%
02240	Long sleeve shirt	3,458	256	\$3,737.60	7.4%
02241	Short sleeve shirt	3,867	84	\$1,020.60	2.2%
02243	Flight cap	1,579	146	\$1,043.90	9.2%
02350	Skirt	1,644	137	\$4,157.95	8.3%
02353	Slacks	3,760	324	\$9,946.80	8.6%
02451	Low quarters	5,107	204	\$10,251.00	4.0%
21100	Neck tab	6,567	474	\$2,417.40	7.2%
Total		30,814	2,512	\$107,987.25	8.2%

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